

Re: GPG press release

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Jan
26

Rob James III <robj@fdnasp.com>

to me

Good morning Michael,
I have read thru the findings and like what you have concluded. Do we have an expected time of publishing the findings?

Thank you
Rob

Rob James III
CVO / Principal
Fluid Dynamics
NA, LLC

239-707-5274 direct

www.fluidynamicsna.com

On Jan 21, 2015, at 12:14 PM, Michael Lowell - PH <mike.lowell@gsa.gov> wrote:

Rob-

I guess we have not kept any copies of past vendor releases. However, Christine, our Communications person, would be happy to review a draft.

In addition, she has attached our Draft Findings or exec summary release which gives you our areas of focus. I will tell you that GSA cannot as a fed agencies endorse a specific product or manufacturer. Our perspective is that we tested an example of a non-chemical water treatment technology. The results are positive and are available to decision makers outside of GSA to make their own determination.

I hope that helps.

Michael Lowell, PE, LEED AP
Sustainability Program Manager
Office of the Chief Greening Officer
Green Proving Ground Program
US General Services Administration
Phone: 303-236-2769

----- Forwarded message -----
From: **Christine Wu - PH** <christine.wu@gsa.gov>
Date: Wed, Jan 21, 2015 at 10:06 AM
Subject: Re: GPG press release
To: Michael Lowell - PH <mike.lowell@gsa.gov>
Cc: Kevin Powell <kevin.powell@gsa.gov>

Hey Mike, sorry I didn't get back to you about this yesterday. We don't have any vendor press releases, but I would be happy to review anything that he would like to run by us. Also, attached is a DRAFT of the findings document so he can see the top-line messages from this evaluation. Hope that helps!

Christine Wu

Sustainability Program Manager
Green Proving Ground Program
U.S. General Services Administration
50 United Nations Plaza
San Francisco, CA 94102
e | christine.wu@gsa.gov
o | [415.436.8778](tel:415.436.8778)
(b) (6)
w | gsa.gov/gpg

On Tue, Jan 20, 2015 at 10:55 AM, Michael Lowell - PH <mike.lowell@gsa.gov> wrote:
Do we have an example of a vendor press release we could give to Rob (NCWT in SLC)?

Michael Lowell, PE, LEED AP

Sustainability Program Manager
Office of the Chief Greening Officer
Green Proving Ground Program
US General Services Administration
Phone: [303-236-2769](tel:303-236-2769)

----- Forwarded message -----
From: **Rob James III** <rob@born2rv.com>
Date: Tue, Jan 20, 2015 at 11:37 AM
Subject: Re: GPG press release
To: Michael Lowell <mike.lowell@gsa.gov>

I would like to do a press release and I know you have to approve that and thought if you had one that was already approved we could use it to draft ours>

Rob

Rob James III
[239-707-5274](tel:239-707-5274)
PO Box 545
St. James City FL 33956
KJ4SMJ
Etch A Sketch

<PastedGraphic-1.tiff>

On Jan 20, 2015, at 11:39 AM, Michael Lowell - PH <mike.lowell@gsa.gov> wrote:

Rob-

Do you mean examples of GSA releases? Ours are not always press...sometimes blogs, etc.

Michael Lowell, PE, LEED AP
Sustainability Program Manager
Office of the Chief Greening Officer
Green Proving Ground Program
US General Services Administration
Phone: [303-236-2769](tel:303-236-2769)

On Tue, Jan 20, 2015 at 9:35 AM, Rob James III <rob@born2rv.com> wrote:
Good morning Michael, I know we are getting close to releasing our test results and I was wondering if you have any examples of press releases that I can have my guy to look at so he can start preparing one for us?

Thank you
Rob

Rob James III

[239-707-5274](tel:239-707-5274)

PO Box 545

St. James City FL 33956

KJ4SMJ

NCWT final report

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

Jan
8

to Andrea, me, Christine

Andrea, I can make this change before sending it to 508 compliance.

Mike and Christine, do you have any thoughts before it goes forward?

Dan

Dan Howett, PE, CEM

R&D Staff

Energy & Transportation Science Division

Oak Ridge National Laboratory

Cell: (b) (6)

Ph: (865) 576-2172

Fx: (865) 574-3851

E-Mail: HowettDH@ORNL.gov

From: Andrea Silvestri [mailto:andrea@ten-fold.com]

Sent: Thursday, January 08, 2015 1:35 PM

To: Howett, Daniel H.

Cc: Michael Lowell; Christine Wu

Subject: Re: NCWT final report

Hello Dan,

Hope you're having a good trip. I think the revised document looks great. There is only one change that didn't get made that I would recommend adding. On the top of page (b) (5) add (b) (5) to the (b) (5) as the financials presented here are really particular to the Salt Lake City installation.

Thanks again for all your work on this!

Best,

Andrea

Tenfold — Organizing knowledge, providing clarity

2330 Seventh Avenue, Oakland, CA 94606

510.596.2000 <http://www.ten-fold.com>

On Tue, Jan 6, 2015 at 12:57 PM, Howett, Daniel H. <howettdh@ornl.gov> wrote:

Good Afternoon All,

All comments have been incorporated. The Google doc is updated. Please take a look for typos and to make sure the current comments have all been accurately incorporated.

I'll be on travel the next three days with limited access to e-mail but will check it on Thursday.

Dan

Dan Howett, PE

R&D Staff

Energy & Transportation Science Division
Oak Ridge National Laboratory

Cell: (b) (6)

Ph: [\(865\) 576-2172](tel:(865)576-2172)

Fx: [\(865\) 574-3851](tel:(865)574-3851)

E-Mail: HowettDH@ORNL.gov

NCWT final report

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

Jan
6

to me, Christine, andrea

Good Afternoon All,

All comments have been incorporated. The Google doc is updated. Please take a look for typos and to make sure the current comments have all been accurately incorporated.

I'll be on travel the next three days with limited access to e-mail but will check it on Thursday.

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
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E-Mail: HowettDH@ORNL.gov

Re: NCWT report, latest version

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

Jan
5

to me

Thanks much. I'll work on getting your comments and Andrea's into the report and then issuing it 100% for legal review. Hopefully by the end of this week.

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
Cell: (b) (6)
Ph: (865) 576-2172
Fx: (865) 574-3851
E-Mail: HowettDH@ORNL.gov

From: Michael Lowell <mike.lowell@gsa.gov<mailto:mike.lowell@gsa.gov>>
Date: Monday, January 5, 2015 3:06 PM
To: Daniel Howett <howettdh@ornl.gov<mailto:howettdh@ornl.gov>>
Subject: Re: NCWT report, latest version

Dan-

Here you go....

Michael Lowell, PE, LEED AP
Sustainability Program Manager
Office of the Chief Greening Officer
Green Proving Ground Program
US General Services Administration
Phone: 303-236-2769

On Thu, Dec 11, 2014 at 2:37 PM, Michael Lowell - PH
<mike.lowell@gsa.gov<mailto:mike.lowell@gsa.gov>> wrote:

Dan-

Looking at the report now...

1. In the Exec. Summary, I see no mention of the need/cost to clean the water tank? I mention it because a maintenance cost

is cited for the salt system in the economic comparison in the Exec. Summary.

a. Would there be a similar bi-annual clean-up for a cooling tower? Is so, I think we should mention that in the analysis of the hypothetical CT discussion.

2. Did you have any luck in finding examples of longevity in Europe...in my quick scan, I did not see any mention of that in the report?

Thanks

Michael Lowell, PE, LEED AP
Sustainability Program Manager
Office of the Chief Greening Officer
Green Proving Ground Program
US General Services Administration
Phone: 303-236-2769

On Tue, Dec 9, 2014 at 8:29 AM, Howett, Daniel H.
<howettdh@ornl.gov<mailto:howettdh@ornl.gov>> wrote:
Mike,

Attached is the latest version of the NCWT report. Major updates include:

1. Observations from the 11/20 visit to SLC. The heating elements were still clean and operating properly. However, there was a layer of soft calcite in the bottom of the tank. The vendor said this is normal when there's not a regular bottom drain on a reservoir. The technology's economics have been adjusted to account for a bi-annual cleaning of the tank. They are still favorable for the technology.
2. I got budget prices for a salt-based system. Installation and operating costs are included and used as the comparison rather than using the changing of heating elements.
3. All references to energy savings are (b) (5) and economics (b) (5) accordingly.
4. The new summary tables are included in the report.

I look forward to receiving quick feedback and drawing this project to a close.

When can ORNL expect to be paid for the extra trip to SLC? Is there anything you need from us to make this happen?

Please let me know your thoughts.

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
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E-Mail: HowettDH@ORNL.gov<mailto:HowettDH@ORNL.gov>

Re: NCWT in Salt Lake City

Contracting/DOE/ORNL x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

12/12/
14

to me, Kevin

What Mike said.

I made the trip and have the final observations recorded in the document that was sent for review on December 9th.

Mike has a copy of the expenses associated with this trip. I charged everything to the \$50k that was sent for miscellaneous GSA support. There is sufficient in that account to complete the technology screenings that are in progress and still cover the trip.

It matters not to ORNL if GSA wants to wait and consolidate this trip with any other change orders. I told Mike that I'd keep close track of charges against the \$50k and let him know if there becomes an urgent need to expedite the change order.

Have a good weekend.

Dan

Dan Howett, PE
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Fx: (865) 574-3851
E-Mail: HowettDH@ORNL.gov

From: Michael Lowell <mike.lowell@gsa.gov><mailto:mike.lowell@gsa.gov>>
Date: Friday, December 12, 2014 1:55 PM
To: Kevin Powell <Kevin.Powell@GSA.gov><mailto:Kevin.Powell@GSA.gov>>
Cc: Daniel Howett <howettdh@ornl.gov><mailto:howettdh@ornl.gov>>

Subject: Re: NCWT in Salt Lake City

You authorized...and Dan and I discussed this week. I told Dan my preference would be to pay for the travel with that extra \$50k....and postpone a modification now. Admittedly, since I am one doing the work, I think it inefficient to do a mod for this (only) \$5k plus trip...and every other small item that comes along. I would rather let some time pass....guessing/knowing that I will be doing another mod for addl. money again in the spring and do it all in one mod.

If we don't need addl. money in the spring....I would then do this inconsequential mod. I have noted this situation in GPG-IS as prompt in the future.

Michael Lowell, PE, LEED AP
Sustainability Program Manager
Office of the Chief Greening Officer
Green Proving Ground Program
US General Services Administration
Phone: 303-236-2769

On Fri, Dec 12, 2014 at 11:49 AM, Kevin Powell - PH
<kevin.powell@gsa.gov<mailto:kevin.powell@gsa.gov>> wrote:
following up on this:

Where did we land? I thought I had authorized travel, but want to make sure that we did, and that we have modified the task order to cover this.

--

Kevin Powell | Director | Green Proving Ground Program
Office of the Chief Greening Officer | U.S. General Services Administration
50 United Nations Plaza, 3rd Floor | San Francisco, CA 94102

kevin.powell@gsa.gov<mailto:kevin.powell@gsa.gov> | 510.423.3384
| gsa.gov/gpg<<http://gsa.gov/gpg>>
[[http://gsablogs.gsa.gov/gsablog/files/2012/04/GPG-
logo.jpg](http://gsablogs.gsa.gov/gsablog/files/2012/04/GPG-logo.jpg)]<[http://gsa.gov/portal/category/102491?utm_source=OCM&utm_medium=print-
radio&utm_term=gpg&utm_campaign=shortcuts](http://gsa.gov/portal/category/102491?utm_source=OCM&utm_medium=print-radio&utm_term=gpg&utm_campaign=shortcuts)>

On Fri, Nov 14, 2014 at 7:16 AM, Howett, Daniel H.
<howettdh@ornl.gov<mailto:howettdh@ornl.gov>> wrote:
Kevin and Mike,

Daniel called me this morning after another prod. He's open to doing whatever is needed to determine the widget's 1-year performance.

I looked up airfare and flights this morning. American Airlines has a flight that would get me to SLC

around noon local time. That afternoon would be spent at the courthouse evaluating heating elements, and then flying back the following morning. Total cost for airfare, hotel, and ORNL labor would be around \$3500.

We talked about the possibility of using Skype for similar means for me to watch the element removal from TN. The last time I was at the site there was no cell or internet service in the basement mechanical room, but he will check to see if there's been an IT upgrade.

Assuming Skype is an option, here are the pro's and con's:

Travel in person: Con: More cost to GSA. Pro: Has the option to insert a camera inside the water heater to do a more thorough evaluation of conditions such as any buildup of calcium flakes or aragonite in the bottom of the tank.

I'm open to doing whatever you think is appropriate.

If you opt for the trip to SLC, would it be alright if I "borrowed" funds from the FY15 "GPG support" project to make the trip in the next week or two? I know it will take a while to get a new batch of funding to ORNL. Unfortunately, travel to SLC in the winter can be fraught with weather perils. My preference would obviously be to get the trip done soon.

I look forward to hearing your thoughts.

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
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E-Mail: HowettDH@ORNL.gov<mailto:HowettDH@ORNL.gov>

SLC costs

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

12/9/1

4

to me

Mike,

Attached is a copy of my expense report for the trip. Labor costs for the trip alone were about \$4000.

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
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Attachments area

Preview attachment 20141209114316651[1].pdf



20141209114316651[1].pdf

NCWT report, latest version

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

12/9/1

4

to me

Mike,

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2. I got budget prices for a salt-based system. Installation and operating costs are included and used as the comparison rather than using the changing of heating elements.
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4. The new summary tables are included in the report.

I look forward to receiving quick feedback and drawing this project to a close.

When can ORNL expect to be paid for the extra trip to SLC? Is there anything you need from us to make this happen?

Please let me know your thoughts.

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory

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Attachments area

Preview attachment GSA GPG NCWT Salt Lake, Final.docx



GSA GPG NCWT Salt Lake, Final.docx

Re: Trip to SLC

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

11/18/
14

to Daniel, Kevin, me

Sounds great by me. Thank you for your help bringing this together.

I'm looking forward to one last burger at the diner across the street. ;-)

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
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Fx: (865) 574-3851
E-Mail: HowettDH@ORNL.gov

From: Daniel Wang <daniel.wang@gsa.gov<mailto:daniel.wang@gsa.gov>>
Date: Tuesday, November 18, 2014 9:12 AM
To: Daniel Howett <howettdh@ornl.gov<mailto:howettdh@ornl.gov>>
Cc: Kevin Powell <Kevin.Powell@GSA.gov<mailto:Kevin.Powell@GSA.gov>>, Michael Lowell
<mike.lowell@gsa.gov<mailto:mike.lowell@gsa.gov>>
Subject: Re: Trip to SLC

Dan,

That sounds great. I already put the mechanics on notice. I just sent a meeting invitation out to the mechanics so they have it on their calendars. Looking forward to seeing you and taking a look at the elements.

Daniel

For all Frank Moss Courthouse building issues, please call (801) 524-5716

Daniel A Wang, Property Manager
US General Services Administration
Frank E Moss Courthouse
350 S Main St, Room B-33
Salt Lake City, UT 84101
email: daniel.wang@gsa.gov<mailto:daniel.wang@gsa.gov>
Office: 801-524-3382
Cell/Text: (b) (6)

On Mon, Nov 17, 2014 at 1:59 PM, Howett, Daniel H.
<howettdh@ornl.gov<mailto:howettdh@ornl.gov>> wrote:
Daniel,

I have plane reservations confirmed to arrive in SLC before lunch this Thursday. If we could arrange to meet at the courthouse around 1:30 that should give me time to get the rental car and a bite of lunch.

If there is a hiccup with this, please let me know ASAP.

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
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E-Mail: HowettDH@ORNL.gov<mailto:HowettDH@ORNL.gov>

NCWT in Salt Lake City

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

11/14/
14

to Kevin, me

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I look forward to hearing your thoughts.

Dan

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R&D Staff
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E-Mail: HowettDH@ORNL.gov

Re: 70% brief on Monday

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

11/5/
14

to me

I'm fine with dropping the tower study. Though I always believe in the power of testing new and underutilized stuff, I agree that the marginal cost of a project could be better spent elsewhere.

My notes agree with yours and Kevin's as far as ORNL action items.

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
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Fx: (865) 574-3851
E-Mail: HowettDH@ORNL.gov

From: Michael Lowell <mike.lowell@gsa.gov<mailto:mike.lowell@gsa.gov>>
Date: Wednesday, November 5, 2014 2:48 PM
To: Daniel Howett <howettdh@ornl.gov<mailto:howettdh@ornl.gov>>
Subject: Re: 70% brief on Monday

Yea...I went ahead and switched it to Thursday.

BTW, on the non-chemical WT. Below is what I took from the call...wanted to see if you concur.

1. Dan will look to UK for third party studies.
2. Report needs to talk about alternative technology (water softner)
 - a. Would think include costs and compare?
3. Clarify value proposition (why would one use this technology).

Were you ok with dropping the tower portion...I was kind of disappointed, but not willing to fight it (I guess since this targets scale, would still need to use a biocide with a tower anyway)?

Thanks

Michael Lowell, PE, LEED AP
Sustainability Program Manager
Office of the Chief Greening Officer
Green Proving Ground Program
US General Services Administration
Phone: 303-236-2769

On Wed, Nov 5, 2014 at 11:01 AM, Howett, Daniel H.
<howettdh@ornl.gov<mailto:howettdh@ornl.gov>> wrote:
Mike,

I just noticed that next Tuesday is the federal Veteran's Day holiday. Do you think that enough people will be in the office Monday to justify having the briefing about WPT?

I'm still prepared to do the session on Monday but just wanted to see if plans might change.

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
Cell: (b) (6)
Ph: (865) 576-2172
Fx: (865) 574-3851
E-Mail: HowettDH@ORNL.gov<mailto:HowettDH@ORNL.gov>

Re: Catalyst testing on cooling tower

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Rob James III <robj@fdnasp.com>

11/3/
14

to me

Yes that fine

Thx

Rob James III

CVO

Fluid Dynamics

NA, LLC

[239-707-5274](tel:239-707-5274) direct

www.fluidynamicsna.com

On Nov 3, 2014, at 5:21 PM, Michael Lowell - PH <mike.lowell@gsa.gov> wrote:

Rob-

I am in the midst of something. Can I call you tomorrow?

Michael Lowell, PE, LEED AP
Sustainability Program Manager
Office of the Chief Greening Officer
Green Proving Ground Program
US General Services Administration
Phone: 303-236-2769

On Mon, Nov 3, 2014 at 3:05 PM, Rob James III <robj@fdnasp.com> wrote:

Thank you Michael but do you mind sharing why the change?

Rob

Rob James III
CVO
Fluid Dynamics
NA, LLC
[239-707-5274](tel:239-707-5274) direct
www.fluidynamicsna.com

On Nov 3, 2014, at 5:02 PM, Michael Lowell - PH <mike.lowell@gsa.gov> wrote:

Rob-

Dan and I had a discussion with Kevin Thursday and it has been determined that we will not be proceeding with the phase II/cooling tower portion of the study.

Michael Lowell, PE, LEED AP

Sustainability Program Manager

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: 303-236-2769

Re: NCWT Findings & Infographic

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

10/30/
14

to Kevin, Andrea, Bill, Marian, Christine, me

Good Morning All,

It's been brought to my attention that this note from yesterday might not appear correctly on everyone's computer screens.

To read my full response, please scroll down to Kevin's e-mail of Monday, October 27 at 2:46pm EDT. He asked 8 specific questions, and my answers are in the body of that e-mail in a red font.

I hope this allows everyone to review the information prior to our call this afternoon. I look forward to a fruitful conversation and moving this project to publication.

Sincerely,
Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
Cell: (b) (6)
Ph: (865) 576-2172
Fx: (865) 574-3851
E-Mail: HowettDH@ORNL.gov

From: <Howett>, Daniel Howett <howettdh@ornl.gov<mailto:howettdh@ornl.gov>>
Date: Wednesday, October 29, 2014 2:18 PM
To: Kevin Powell <Kevin.Powell@GSA.gov<mailto:Kevin.Powell@GSA.gov>>, "andrea@ten-fold.com<mailto:andrea@ten-fold.com>" <andrea@ten-fold.com<mailto:andrea@ten-fold.com>>
Cc: Bill Freais¶ <bill@ten-fold.com<mailto:bill@ten-fold.com>>, Marian Mabel <marian@ten-fold.com<mailto:marian@ten-fold.com>>, Christine Wu

<christine.wu@gsa.gov<mailto:christine.wu@gsa.gov>>, Michael Lowell
<mike.lowell@gsa.gov<mailto:mike.lowell@gsa.gov>>
Subject: Re: NCWT Findings & Infographic

Hello Kevin and Andrea,

Answers to the specific questions posed are given below.

After reading the 1-page info graphic, I do see the points of confusion. In the full report, there was space to fully explain the technology and details about the test. Much of this gets lost in the editing to a 1-page document. Attached is a scanned image of the document with a few notes on it.

Do we want to include energy savings on the 1-page document? Energy savings are discussed within the full report, but there is a clear distinction that energy savings are an ancillary benefit to the technology, but not a primary benefit. Within the full report, economic payback is calculated both with and without the energy savings included. Without energy savings included, the simple payback was still less than two years. Personally, I think the info graphic would be more useful and accurate for the majority of readers if energy savings were not included as most sites would not see this as a primary benefit.

The table for "Equipment Cost and Savings for..." might be improved by (b) (5) [REDACTED]
[REDACTED] The site had no water softener in use on the domestic hot water system, which is reflected between existing conditions and post-technology conditions. However, it would be easy enough to (b) (5) [REDACTED] installed and operating costs of a salt-based water softener that would be appropriate for the hot water system. Thoughts on adding this column?

I look forward to hearing everyone's thoughts and bringing this project to full publication.

Sincerely,
Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
Cell: (b) (6) [REDACTED]
Ph: (865) 576-2172
Fx: (865) 574-3851
E-Mail: HowettDH@ORNL.gov<mailto:HowettDH@ORNL.gov>

From: Kevin Powell <Kevin.Powell@GSA.gov<mailto:Kevin.Powell@GSA.gov>>
Date: Monday, October 27, 2014 2:46 PM
To: "andrea@ten-fold.com<mailto:andrea@ten-fold.com>" <andrea@ten-fold.com<mailto:andrea@ten-fold.com>>

Cc: Daniel Howett <howettdh@ornl.gov<mailto:howettdh@ornl.gov>>, Bill Freais¶ <bill@ten-fold.com<mailto:bill@ten-fold.com>>, Marian Mabel <marian@ten-fold.com<mailto:marian@ten-fold.com>>, "christine.wu@gsa.gov<mailto:christine.wu@gsa.gov>>" <christine.wu@gsa.gov<mailto:christine.wu@gsa.gov>>, Michael Lowell <mike.lowell@gsa.gov<mailto:mike.lowell@gsa.gov>>
Subject: Re: NCWT Findings & Infographic

All,

I need clarification on a few things expressed in these findings...I haven't gone back to the underlying report, but I see a lot of (b) (5)

(b) (5)

I am very confident that the device mitigates the buildup of calcite in systems that use water. The data was clear on that point. However, it would be (b) (5)

Each case must be evaluated individually to determine if this technology is cost effective for them. (b) (5)

The manufacturer has stated that that their device can operate in all hardnesses as well as salt water.

2. Under what circumstances will this technology have payback in (b) (5) I want to make sure we didn't cherry pick an atypically worst case site where this is true, while a more typical site would have a much (b) (5)

Any number of factors will create a site for which this technology will pay back in under a year: Water with an very high calcium content; Calcification issues that cause large continuous O&M expenses; A system which continually uses a large quantity of water throughout the year.

The site in Salt Lake City was certainly (b) (5) which had all three factors working against it, but I would not consider it (b) (5)

The range of (b) (5) can run from less than (b) (5). For example, look at a site has very hard water and a hot water generator used for space heating, but the climate is such that the device is only used three months out of the year. It might be more cost effective for that site to install a salt-based water softener with a probable lower first cost than the catalyst-based system. Even though the salt-based system has an ongoing cost of chemicals, which the catalyst-based system does not, it might be cost effective in the long run.

3. I am puzzled by the statements that this technology has been in use since 1973. Are we saying that this device has been around for more than 40 years, (b) (5)

(b) (5)

(I know I should know, but I can't recall)? (b) (5)

This technology came from the UK, where it has been used commercially since 1973 and has gained wide acceptance. It was brought the US in 2009 and is still in the acceptance phase like any new technology. A good analogy would be the variable refrigerant flow (VRF) HVAC systems. They have been used in Asia for decades but only came to America about ten years ago. They had a certain hill to climb before gaining acceptance but are now widely used in appropriate applications.

(b) (5)

I wasn't involved in the selection process for this technology so can't comment. However, I can tell you that if a vendor had brought me this technology when I was still an end user in facilities, I'd have considered it for use at my site.

4. Did we evaluate the state of the resistance elements at the test site after (b) (5) months? (b) (5)
Since the technology has now been operational for nearly (b) (5) years...that would seem possible - and critical, given that payback is predicated on resistance elements lasting for at least (b) (5) year rather than (b) (5) months...so we need to know that that this condition is satisfied. If all we know is that they are good after three months....that doesn't say much. I'm also puzzled by the payback only

(b) (5)

The site manager, Daniel Wang, reports that the elements are still in good condition with no calcium buildup.

There was no incumbent technology being used to mitigate calcification on the domestic water system at the site. The economics were based upon the conditions we saw at the site.

5. I am also puzzled by the inconsistency between "commercial-grade heating elements" that failed after (b) (5) months (Findings) and "commercial grade elements which would have failed approximately every (b) (5) months under similar conditions" (Lessons Learned). Which is it? And if it is the latter... (b) (5) I'm also really puzzled by this heater burning out elements every (b) (5) months. Seems like that would be very atypical, and would be solved (as an ongoing problem) in some manner other than (b) (5) replacement. (b) (5)

Repeated frequent failure of heating elements is not atypical under these conditions. The site presented initially with elements failing every (b) (5) months, which is fairly out-of-the-norm. For that reason, the economic calculations were performed based upon elements being replaced every (b) (5) months, which is a more commonly seen time period.

The payback calculations can be done to look at a variety of scenarios: The existing conditions that were found at the site or comparison to a theoretical incumbent system.

6. If there is high iron content, and the device requires "cleaning" (e.g. a plumber to remove a section of pipe, clean out, re-install) - isn't this (b) (5)

This issue can be included in whatever section is appropriate. It is also possible to install an iron filter in a system with known high-iron conditions.

7. If this truly can broadly deliver (b) (5) ...but has been around for 40 years...I'm questioning (b) (5). And if it (b) (5) either....something else is going on that is preventing market penetration and uptake

Speaking solely from my own experience, the key barrier to adoption is the zillion bottles of water treatment "snake oil" that have been peddled to end users over the years. There is nothing about this catalyst-based system that makes sense at first glance. However, potential end users with calcification challenges now have a third-party evaluation that show the technology's potential, and which they can use to do a more detailed evaluation to determine its viability at their own site.

This technology is well adopted in Europe. Rob tells us that in Europe building codes require water treatment.

8. Need to understand the application for gas fired boilers and water heaters - since the resistance element is out of the equation... (b) (5)? Conversely, if this is only cost effective application is to resistance based water heaters....how much of a (b) (5) opportunity is there?

Calcite buildup can impact heat transfer on gas fired units as well as electric units. If heat transfer is impeded, the tubes/burners/panels of a gas-fired unit can also fail. If a heat pump is experiencing calcite buildup on the condenser side, it is also possible that this technology will provide mitigation. It is not practical to evaluate every scenario where this device might work, but this study gives site managers confidence in the technology's efficacy so they can proceed and evaluate the economics at their particular site.

And, re: next steps. I need a brief on what is innovative about this technology, why it hasn't achieved uptake prior, and how (and where) it can deliver in terms of a cooling tower application before we further pursue this effort.

My notes/edits attached.

--

Kevin Powell | Director | Green Proving Ground Program

Office of the Chief Greening Officer | U.S. General Services Administration
50 United Nations Plaza, 3rd Floor | San Francisco, CA 94102

kevin.powell@gsa.gov<mailto:kevin.powell@gsa.gov> | 510.423.3384
| gsa.gov/gpg<<http://gsa.gov/gpg>>
[[http://gsablogs.gsa.gov/gsablog/files/2012/04/GPG-
logo.jpg](http://gsablogs.gsa.gov/gsablog/files/2012/04/GPG-logo.jpg)]<[http://gsa.gov/portal/category/102491?utm_source=OCM&utm_medium=print-
radio&utm_term=gpg&utm_campaign=shortcuts](http://gsa.gov/portal/category/102491?utm_source=OCM&utm_medium=print-radio&utm_term=gpg&utm_campaign=shortcuts)>

On Mon, Oct 27, 2014 at 8:00 AM, Andrea Silvestri <andrea@ten-fold.com<mailto:andrea@ten-fold.com>> wrote:

Good morning Dan,

Hope you had a good trip to San Francisco! Attached are drafts of the NCWT Findings and Infographic. We appreciate your feedback.

Best,

Andrea

~~~~~  
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510.596.2000<tel:510.596.2000> <http://www.ten-fold.com>



## Re: NCWT Findings & Infographic

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x

**Michael Lowell - PH <mike.lowell@gsa.gov>**

10/29/  
14

to Daniel, Andrea, Christine, Dan

Thanks Daniel. BTW, have you or the O & M staff checked the elements recently? We are wondering how the system has worked now...say a year later.

Thanks again!

Michael Lowell, PE, LEED AP  
Sustainability Program Manager  
Office of the Chief Greening Officer  
Green Proving Ground Program  
US General Services Administration  
Phone: 303-236-2769

On Wed, Oct 29, 2014 at 7:36 AM, Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)> wrote:

Hi Mike,

I've made some minor revisions to the quote:

"Before we installed the catalytic insert, our hot water heating elements failed every six weeks because our water is so hard. With the inserts in place, regular inspections show there is essentially no scale build up at all."

Thanks for the opportunity to review it!

Daniel

---

***For all Frank Moss Courthouse building issues, please call (801) 524-5716***

***Daniel A Wang, Property Manager***

***US General Services Administration***

***Frank E Moss Courthouse***

***350 S Main St, Room B-33***

***Salt Lake City, UT 84101***

***email: [daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)***

***Office: 801-524-3382***

***Cell/Text: (b) (6)***

On Mon, Oct 27, 2014 at 9:45 AM, Michael Lowell - PH <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:

Daniel-

Please review the quote in the Findings document...which we are attributing to you!!

Thanks

Michael Lowell, PE, LEED AP

Sustainability Program Manager  
Office of the Chief Greening Officer  
Green Proving Ground Program  
US General Services Administration  
Phone: [303-236-2769](tel:303-236-2769)

----- Forwarded message -----

From: **Andrea Silvestri** <[andrea@ten-fold.com](mailto:andrea@ten-fold.com)>  
Date: Mon, Oct 27, 2014 at 9:00 AM  
Subject: NCWT Findings & Infographic  
To: "Howett, Daniel H." <[howettdh@ornl.gov](mailto:howettdh@ornl.gov)>  
Cc: Bill Freais¶ <[bill@ten-fold.com](mailto:bill@ten-fold.com)>, Marian Mabel <[marian@ten-fold.com](mailto:marian@ten-fold.com)>, Kevin Powell <[kevin.powell@gsa.gov](mailto:kevin.powell@gsa.gov)>, Christine Wu - 9P2PTA <[christine.wu@gsa.gov](mailto:christine.wu@gsa.gov)>, Michael Lowell <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)>

Good morning Dan,

Hope you had a good trip to San Francisco! Attached are drafts of the NCWT Findings and Infographic. We appreciate your feedback.

Best,

Andrea

---

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## Re: NCWT

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <[howettdh@ornl.gov](mailto:howettdh@ornl.gov)>

10/28/  
14

to Kevin, me

Good Morning Kevin,

Andrea, Christine, and I had a fruitful talk in Sf last week about how to engage Tenfold earlier, and how to structure the reports so they are more useful to the target readers.

I'm in meetings all morning but would love to talk more this afternoon or late this week.

Dan

Dan Howett, P.E.  
ORNL, R&D Staff  
E-mail: [HowettDH@ORNL.gov](mailto:HowettDH@ORNL.gov)<mailto:[HowettDH@ORNL.gov](mailto:HowettDH@ORNL.gov)>  
Phone: 865-253-0567  
Sent from my iPad

On Oct 27, 2014, at 3:06 PM, "Kevin Powell - PH" <[kevin.powell@gsa.gov](mailto:kevin.powell@gsa.gov)<mailto:[kevin.powell@gsa.gov](mailto:kevin.powell@gsa.gov)>>  
wrote:

Dan,

First, confession. I looked over this report previously, but not really 'read it'.

A few thoughts.

1. Tenfold's summary highlights some issues with the report. Getting to this place so late in the game is not good. How do we do better going forward?
2. Can we revisit the site, to see if everything is still functioning as intended one+ year later? That is the real story.
3. We have to do the payback based on the alternative solution, not on maintaining an unacceptable situation. Need to help TF with this

--

Kevin Powell | Director | Green Proving Ground Program

Office of the Chief Greening Officer | U.S. General Services Administration  
50 United Nations Plaza, 3rd Floor | San Francisco, CA 94102

## Re: Cooling Tower Test

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



**Rob James III <robj@fdnasp.com>**

10/22/  
14

to me, Dan

Yes we should start when ever it's convenient.

Thank you

Rob

Rob James III

CVO

Fluid Dynamics

NA, LLC

[239-707-5274](tel:239-707-5274) direct

[www.fluidynamicsna.com](http://www.fluidynamicsna.com)

On Oct 22, 2014, at 9:52 AM, Michael Lowell - PH <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:

Dan and Rob-

Thought I had better follow up on this. With our various vacations, should we rendezvous to restart this?

Thanks

Michael Lowell, PE, LEED AP  
Sustainability Program Manager  
Office of the Chief Greening Officer  
Green Proving Ground Program  
US General Services Administration  
Phone: 303-236-2769

On Wed, Sep 3, 2014 at 10:23 AM, Michael Lowell - PH <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:

Here are my quick notes:

Agreed to a follow on...which will be an addendum to the soon to be released water heater report.

### **Action Items**

- Will be an FY 15 project
- Looking for sites w/hard water
- Maybe a location ORNL is already working
- Select maybe 3-4 possibilities
  - Test water afterwards to drive decision
  - A smaller cooling tower is more desirable
  - Preferably a site in the south...all year operation
- ORNL gets GSA a draft of site characteristics and SOW by 9/12

Michael Lowell, PE, LEED AP  
Program Expert  
Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: 303-236-2769



## Re: Revised NCWT Report

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <[howettdh@ornl.gov](mailto:howettdh@ornl.gov)>

10/20/  
14

to me

I'm in San Francisco this week and actually erring with Andrea this pm. I think well have it resolved.

Trek was an amazing life experience. If you're on Facebook I have photos posted.

Sent from my iPhone

On Oct 20, 2014, at 9:11 AM, "Michael Lowell - PH"  
<[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)><mailto:[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)>> wrote:

Dan-

Would a quick call to discuss this help...or does that make your skin crawl? <360.gif>

P.S. Welcome back from the trek...anxious to hear the stories.

Michael Lowell, PE, LEED AP  
Sustainability Program Manager  
Office of the Chief Greening Officer  
Green Proving Ground Program  
US General Services Administration  
Phone: 303-236-2769

On Wed, Oct 15, 2014 at 1:47 PM, Andrea Silvestri <[andrea@ten-fold.com](mailto:andrea@ten-fold.com)><mailto:[andrea@ten-fold.com](mailto:andrea@ten-fold.com)>> wrote:

Hi Dan,

It's the threshold we're wondering about. How can we justify the 300 mg/liter threshold figure when the the USGS map shows a maximum hardness of 250 mg/liter? How can both these numbers be correct?

If we can't reconcile the numbers, maybe we can eliminate them, and say something like: the harder

the water, the more likely it is that NCWT will be cost-effective.

Please us know and thanks again for your help.

Andrea

~~~~~  
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510.596.2000<tel:510.596.2000> <http://www.ten-fold.com>
~~~~~

On Mon, Oct 13, 2014 at 7:45 AM, Ewing, Vj <[ewingvj@ornl.gov](mailto:ewingvj@ornl.gov)<mailto:[ewingvj@ornl.gov](mailto:ewingvj@ornl.gov)>> wrote:  
I'll wait until I hear from you all and/or receive a later draft to start; however, I will be on travel  
Tuesday through Thursday, so I probably won't be able to complete my part until early next week.

Vj

VJ Ewing  
Creative Media  
4500S, G 56-6  
865-241-6645<tel:865-241-6645>  
865-574-9958<tel:865-574-9958> (Fax)  
The test of our progress is not whether we add  
more to the abundance of those who have much;  
It is whether we provide for those who have too little.

From: Howett, Daniel H.  
Sent: Monday, October 13, 2014 10:40 AM  
To: Andrea Silvestri; Ewing, Vj  
Cc: Kevin Powell; Christine Wu - 9P2PTA; Michael Lowell; Bill Freais?  
Subject: Re: Revised NCWT Report

Andrea,

Please feel free to edit in whichever way you think would make things clearer. The USGS map was added due (b) (5) It provides guidance to users who potentially would benefit from the product, but by no means is the the final word.

And to clarify, each site must look at its individual conditions and economics to determine life-cycle cost effectiveness. The 300mg/liter is a good threshold at which to consider this device, but it is wrong to say "any facility" would find it cost effective.

Please let me know what else you need from me.

Dan

Dan Howett, PE  
R&D Staff  
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Ph: (865) 576-2172<tel:%28865%29%20576-2172>  
Fx: (865) 574-3851<tel:%28865%29%20574-3851>  
E-Mail: HowettDH@ORNL.gov<mailto:[HowettDH@ORNL.gov](mailto:HowettDH@ORNL.gov)>

From: "[andrea@ten-fold.com](mailto:andrea@ten-fold.com)<mailto:[andrea@ten-fold.com](mailto:andrea@ten-fold.com)>" <[andrea@ten-fold.com](mailto:andrea@ten-fold.com)<mailto:[andrea@ten-fold.com](mailto:andrea@ten-fold.com)>>  
Date: Friday, October 10, 2014 7:03 PM  
To: Daniel Howett <[howettdh@ornl.gov](mailto:howettdh@ornl.gov)<mailto:[howettdh@ornl.gov](mailto:howettdh@ornl.gov)>>, "Ewing, Vj" <[ewingvj@ornl.gov](mailto:ewingvj@ornl.gov)<mailto:[ewingvj@ornl.gov](mailto:ewingvj@ornl.gov)>>  
Cc: Kevin Powell <[Kevin.Powell@GSA.gov](mailto:Kevin.Powell@GSA.gov)<mailto:[Kevin.Powell@GSA.gov](mailto:Kevin.Powell@GSA.gov)>>, "[christine.wu@gsa.gov](mailto:christine.wu@gsa.gov)<mailto:[christine.wu@gsa.gov](mailto:christine.wu@gsa.gov)>" <[christine.wu@gsa.gov](mailto:christine.wu@gsa.gov)<mailto:[christine.wu@gsa.gov](mailto:christine.wu@gsa.gov)>>, Michael Lowell <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)<mailto:[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)>>, Bill Freais? <[bill@ten-fold.com](mailto:bill@ten-fold.com)<mailto:[bill@ten-fold.com](mailto:bill@ten-fold.com)>>  
Subject: Revised NCWT Report

Hello VJ and Dan,

Attached is the revised report. We've made changes to page 1 and pages 20 and 21 and tracked changes.

We do have one remaining question which we should discuss before making the report 508-compliant:

(b) (5)

(b) (5)

Thanks again for your help! And welcome home Dan!

Andrea Silvestri

~~~~~

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510.596.2000<tel:510.596.2000> <http://www.ten-fold.com>

Re: Revised NCWT Report

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



Howett, Daniel H. <howettdh@ornl.gov>

10/13/
14

to Andrea, Vj, Kevin, Christine, me, Bill

Andrea,

Please feel free to edit in whichever way you think would make things clearer. The USGS map was added due (b) (5) It provides guidance to users who potentially would benefit from the product, but by no means is the the final word.

And to clarify, each site must look at its individual conditions and economics to determine life-cycle cost effectiveness. The 300mg/liter is a good threshold at which to consider this device, but it is wrong to say "any facility" would find it cost effective.

Please let me know what else you need from me.

Dan

Dan Howett, PE
R&D Staff
Energy & Transportation Science Division
Oak Ridge National Laboratory
Cell: (b) (6)
Ph: (865) 576-2172
Fx: (865) 574-3851
E-Mail: HowettDH@ORNL.gov

From: "andrea@ten-fold.com<mailto:andrea@ten-fold.com>" <andrea@ten-fold.com<mailto:andrea@ten-fold.com>>

Date: Friday, October 10, 2014 7:03 PM

To: Daniel Howett <howettdh@ornl.gov<mailto:howettdh@ornl.gov>>, "Ewing, Vj" <ewingvj@ornl.gov<mailto:ewingvj@ornl.gov>>

Cc: Kevin Powell <Kevin.Powell@GSA.gov<mailto:Kevin.Powell@GSA.gov>>, "christine.wu@gsa.gov<mailto:christine.wu@gsa.gov>"

<christine.wu@gsa.gov<mailto:christine.wu@gsa.gov>>, Michael Lowell
<mike.lowell@gsa.gov<mailto:mike.lowell@gsa.gov>>, Bill Freais¶ <bill@ten-fold.com<mailto:bill@ten-fold.com>>

Subject: Revised NCWT Report

Hello VJ and Dan,

Attached is the revised report. We've made changes to page 1 and pages 20 and 21 and tracked changes.

We do have one remaining question which we should discuss before making the report 508-compliant:

(b) (5)

(b) (5)

Thanks again for your help! And welcome home Dan!

Andrea Silvestri

~~~~~

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510.596.2000<tel:510.596.2000> <http://www.ten-fold.com>

## Re: Non-chemical water treatment

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



**Rob James III <[robj@fdnasp.com](mailto:robj@fdnasp.com)>**

8/22/  
14

to me, Andrea, Christine, Bill, Marian, Dan

Andrea. All of our products use the same technology. The difference in the names are the size of each.

Housetron is for residential applications

Scaletron is for commercial and industrial applications 3" and under and are threaded.

CAT are for commercial and industrial over 3". They are flanged and heavy wall tubing.

They are all Stainless Steel.

The Utah installs are scaletrons.

If you have any other questions let me know.

Thank you

Rob

Rob James III

239-707-5274

On Aug 22, 2014, at 4:53 PM, Michael Lowell - PH <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:

Andrea-

I don't have a clue. I have copied Dan and Rob James, from Fluid Dynamics here...I am sure they can help us.

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: 303-236-2769

On Fri, Aug 22, 2014 at 2:05 PM, Andrea Silvestri <[andrea@ten-fold.com](mailto:andrea@ten-fold.com)> wrote:

Hello Mike,

We're been looking at Fluid Dynamics for more background info on the product and we're unclear if the M&V was using the Scaletron or Colloid-A-Tron. Both are catalyst-based pipes and both seem to work with hot water heaters according to the product specs and brochures.

Thanks,

Andrea

Scaletron <http://www.fluidynamicsna.com/products/scaletron/>

Colloid-A-Tron : <http://www.fluidynamicsna.com/products/colloid-tron/>

---

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## Re: Salt Lake City, Water treatment report

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



**Howett, Daniel H. <howettdh@ornl.gov>**

8/7/1

4

to Christine, me, Kevin, Vj

Christine,  
Here's is the "pre-508" draft. Please let me know what else you need.  
Dan

Dan Howett, PE  
R&D Staff  
Energy & Transportation Science Division  
Oak Ridge National Laboratory  
Cell: (b) (6)  
Ph: (865) 576-2172  
Fx: (865) 574-3851  
E-Mail: HowettDH@ORNL.gov

From: Christine Wu - 9P2PTA <[christine.wu@gsa.gov](mailto:christine.wu@gsa.gov)<mailto:[christine.wu@gsa.gov](mailto:christine.wu@gsa.gov)>>  
Date: Thursday, August 7, 2014 2:15 PM  
To: Daniel Howett <[howettdh@ornl.gov](mailto:howettdh@ornl.gov)<mailto:[howettdh@ornl.gov](mailto:howettdh@ornl.gov)>>  
Cc: Michael Lowell <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)<mailto:[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)>>, Kevin Powell  
<[Kevin.Powell@GSA.gov](mailto:Kevin.Powell@GSA.gov)<mailto:[Kevin.Powell@GSA.gov](mailto:Kevin.Powell@GSA.gov)>>, "Ewing, Vj"  
<[ewingvj@ornl.gov](mailto:ewingvj@ornl.gov)<mailto:[ewingvj@ornl.gov](mailto:ewingvj@ornl.gov)>>  
Subject: Re: Salt Lake City, Water treatment report

Thank you, Dan! Your responses in the comment tracker look good to us. If you have a version of the final report that we can read through before 508 is ready, we would love to see it.

Vj, one thing to note is that we are now planning to date the reports with their publication date instead of their 100% completion date. For now, please use December 2014, though this is subject to change (hopefully with minimal impact to 508-compliance!).

Christine Wu  
Green Proving Ground | Communications Manager  
Portfolio Management | R9 Asset Management Specialist  
U.S. General Services Administration  
50 United Nations Plaza  
San Francisco, CA 94102  
[christine.wu@gsa.gov](mailto:christine.wu@gsa.gov)<mailto:[christine.wu@gsa.gov](mailto:christine.wu@gsa.gov)>  
Office: 415.436.8778<tel:415.436.8778>  
Mobile: (b) (6)

On Thu, Aug 7, 2014 at 8:07 AM, Howett, Daniel H.  
<[howettdh@ornl.gov](mailto:howettdh@ornl.gov)<mailto:[howettdh@ornl.gov](mailto:howettdh@ornl.gov)>> wrote:  
Good Morning All,

All comments from the team have been incorporated into the final report. Attached is an Excel version of the Google tracking doc. I wasn't sure if my changes to the Google doc were going to be incorporated or not.

The report is now in the hands of ORNL communications group for final formatting and 508 compliance. They anticipate working on this next week.

I'll issue it to GSA as soon as its ready. I'll also assemble a "site selection criteria" to start the process of looking for a potential site to demonstrate the technology on a cooling tower.

Everybody have a good day.

Dan

Dan Howett, PE  
R&D Staff  
Energy & Transportation Science Division  
Oak Ridge National Laboratory  
Cell: (b) (6)  
Ph: (865) 576-2172<tel:%28865%29%20576-2172>  
Fx: (865) 574-3851<tel:%28865%29%20574-3851>  
E-Mail: [HowettDH@ORNL.gov](mailto:HowettDH@ORNL.gov)<mailto:[HowettDH@ORNL.gov](mailto:HowettDH@ORNL.gov)>

**Re: NCWT report**

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x

**Michael Lowell - 8P2 <mike.lowell@gsa.gov>**

4/28/  
14

to Daniel

Daniel-

I understand...the life of a Building Manager.

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: 303-236-2769

On Mon, Apr 28, 2014 at 10:58 AM, Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)> wrote:  
Hi Mike,

I'm sorry, I don't have it put together yet. I will try to get something for you shortly, but I've been swamped with some other pressing things.

Daniel

---

***For all Frank Moss Courthouse building issues, please call (801) 524-5716***

***Daniel A Wang, Property Manager***

***US General Services Administration***

***Frank E Moss Courthouse***

***Salt Lake City, UT***

***Office: 801-524-3382***

***VOIP: 303-236-1272***

***Cell/Text: (b) (6)***

On Mon, Apr 28, 2014 at 9:19 AM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:  
Daniel-

Any estimate on the flow gauge?

Thanks

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: [303-236-2769](tel:303-236-2769)

On Tue, Apr 22, 2014 at 12:09 PM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:

Daniel-

Thought I would check and see if you have an estimate.

Thanks

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: [303-236-2769](tel:303-236-2769)

On Fri, Apr 18, 2014 at 10:01 AM, Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)> wrote:  
Hi Kevin,

I'm not certain what the cost would be at the moment. I can work on an estimate on Monday when I return to the office.

Daniel

---

*For all Frank Moss Courthouse building issues, please call [\(801\) 524-5716](tel:8015245716)*

*Daniel A Wang, Property Manager*

*US General Services Administration*

**Frank E Moss Courthouse**

**Salt Lake City, UT**

**Office:** [801-524-3382](tel:801-524-3382)

**VOIP:** [303-236-1272](tel:303-236-1272)

**Cell/Text:** (b) (6)

On Fri, Apr 18, 2014 at 10:00 AM, Kevin Powell - PH <[kevin.powell@gsa.gov](mailto:kevin.powell@gsa.gov)> wrote:  
would prefer to use BA 54 if at all possible. Our BA 61 budget is fully committed; however if this is a small (under \$5k) item, we could probably do that.

--

Kevin Powell | Director | Green Proving Ground Program

Office of the Chief Greening Officer | U.S. General Services Administration

50 United Nations Plaza, 3rd Floor | San Francisco, CA 94102

[kevin.powell@gsa.gov](mailto:kevin.powell@gsa.gov) | [510.423.3384](tel:510.423.3384) | [gsa.gov/gpg](http://gsa.gov/gpg)



On Fri, Apr 18, 2014 at 7:32 AM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:  
Yes...that is correct. KEVIN-Does GPG have some BA 61 we could use to purchase and install a flow meter to the cooling tower at SLC? I am trying to expedite this as cooling season is here.

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: [303-236-2769](tel:303-236-2769)

On Thu, Apr 17, 2014 at 3:15 PM, Doug Rothgeb - 8P2PM-C <[doug.rothgeb@gsa.gov](mailto:doug.rothgeb@gsa.gov)> wrote:  
If it's under 10k than it could be BA61. BA54 otherwise. That's my experience anyway.

On Thu, Apr 17, 2014 at 3:03 PM, Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)> wrote:  
Agreed. Here are my comments ... all very minor.

Thanks,

Daniel

---

*For all Frank Moss Courthouse building issues, please call [\(801\) 524-5716](tel:801-524-5716)*

*Daniel A Wang, Property Manager*

*US General Services Administration*

*Frank E Moss Courthouse*

*Salt Lake City, UT*

**Office:** [801-524-3382](tel:801-524-3382)

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**Cell/Text:** (b) (6)

On Thu, Apr 17, 2014 at 2:58 PM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:  
I will ask around too...I guess that would be BA 61....

Michael Lowell, PE, LEED AP  
Program Expert  
Office of the Chief Greening Officer  
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US General Services Administration  
Phone: [303-236-2769](tel:303-236-2769)

On Thu, Apr 17, 2014 at 2:42 PM, Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)> wrote:  
Hi Mike,

Sorry about that. the 28th will work out fine. Also, if we can get a flow meter on the pipes, that would be great. I don't know if I have the funding to get something installed, but I can ask around to see if there is money.

Thanks,

Daniel

---

*For all Frank Moss Courthouse building issues, please call [\(801\) 524-5716](tel:801-524-5716)*

*Daniel A Wang, Property Manager  
US General Services Administration  
Frank E Moss Courthouse  
Salt Lake City, UT  
Office: [801-524-3382](tel:801-524-3382)*



**VOIP:** [303-236-1272](tel:303-236-1272)

**Cell/Text:** (b) (6)

On Thu, Apr 17, 2014 at 1:17 PM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:  
Daniel-

I wasn't able to schedule the call until Apr. 28 (Rob and Dan have earlier conflicts). I sent another email asking if a flow meter on the tower would speed up the process...as I know the FD widget will need to be sized.

Thanks

Michael Lowell, PE, LEED AP  
Program Expert  
Office of the Chief Greening Officer  
Green Proving Ground Program  
US General Services Administration  
Phone: [303-236-2769](tel:303-236-2769)

On Thu, Apr 17, 2014 at 1:10 PM, Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)> wrote:  
Yes, let's do a call. I'm in our regional office today and have been in and out of meetings. I am reviewing the 95% report now and should have a response to you today if there are any comments.

Daniel

---

***For all Frank Moss Courthouse building issues, please call [\(801\) 524-5716](tel:801-524-5716)***

**Daniel A Wang, Property Manager**

**US General Services Administration**

**Frank E Moss Courthouse**

**Salt Lake City, UT**

**Office:** [801-524-3382](tel:801-524-3382)

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**Cell/Text:** (b) (6)

On Thu, Apr 17, 2014 at 8:12 AM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:  
Does it make sense to have ALL of us on the call with Rob next week?

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: [303-236-2769](tel:303-236-2769)

----- Forwarded message -----

From: **Rob James III** <[robj@fdnasp.com](mailto:robj@fdnasp.com)>

Date: Thu, Apr 17, 2014 at 8:05 AM

Subject: Re: NCWT report

To: Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)>

Thank you Michael, Yes I saw that but never heard whether Daniel had an interests. I would like to discuss this next week if we can.

Thank you and Happy Easter

Rob

Rob James III

CVO / Principal

Fluid Dynamics



NA, LLC

4900 Airport Parkway



#1005

Addison, Texas 75001-1005

[239-707-5274](tel:239-707-5274) direct

214-614-8300 Fax

[www.fluidynamicsna.com](http://www.fluidynamicsna.com)

On Apr 17, 2014, at 9:58 AM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:

Rob-

I don't know if you have looked at the 95% report yet, but please see my comment below. GSA and Dan at ORNL concur with my interest in adding back the cooling tower. Now I am emailing you to see if you are interested...I think it would give a much more compelling story.

Thanks

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: [303-236-2769](tel:303-236-2769)

----- Forwarded message -----

From: **Michael Lowell - 8P2** <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)>

Date: Wed, Apr 9, 2014 at 12:20 PM

Subject: NCWT report

To: Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)>

Cc: Doug Rothgeb - 8P2PM-C <[doug.rothgeb@gsa.gov](mailto:doug.rothgeb@gsa.gov)>, Kevin Powell <[kevin.powell@gsa.gov](mailto:kevin.powell@gsa.gov)>

Daniel-

I don't know if you have looked at the 95% yet....but I have one thought. Great results....but only on a domestic water heater. This could be a much more impactful report if it included results for a cooling tower!

Now that we have confidence in the technology...would you be willing and interested in adding the cooling tower back into the study (I know your salt based system is working)?

Thanks

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

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US General Services Administration

Phone: [303-236-2769](tel:303-236-2769)

--

R. Doug Rothgeb, PE, CEM; Contractor

Building Operations Program Specialist

The Arcanum Group in Support of GSA Region 8 PBS

Phone: [303-236-3677](tel:303-236-3677)

Mobile: (b) (6)

1 Denver Federal Center

P.O. Box 25546 (8P2PM)

Denver, CO 80225

## Re: NCWT report

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x

Daniel Wang - 8PSMPU <daniel.wang@gsa.gov>

4/16/  
14

to me, Doug

Michael,

Sorry, I missed this email. I agree that there is a great opportunity here to give this a try on our cooling tower. Let's discuss more. We are just at the start of the cooling season and if there's any way to push this through now, that would be great. I could try to schedule walk through with a plumber for installation costs as soon as next week if this seems like a viable project.

Thanks,

Daniel

---

***For all Frank Moss Courthouse building issues, please call (801) 524-5716***

***Daniel A Wang, Property Manager***

***US General Services Administration***

***Frank E Moss Courthouse***

**Salt Lake City, UT**

**Office: 801-524-3382**

**VOIP: 303-236-1272**

**Cell/Text: (b) (6)**

On Wed, Apr 16, 2014 at 11:16 AM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:  
Daniel-

Do you have any thoughts on adding the cooling tower?

Thanks

Michael Lowell, PE, LEED AP  
Program Expert  
Office of the Chief Greening Officer  
Green Proving Ground Program  
US General Services Administration  
Phone: [303-236-2769](tel:303-236-2769)

On Wed, Apr 9, 2014 at 12:20 PM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:  
Daniel-

I don't know if you have looked at the 95% yet....but I have one thought. Great results...but only on a domestic water heater. This could be a much more impactful report if it included results for a cooling tower!

Now that we have confidence in the technology...would you be willing and interested in adding the cooling tower back into the study (I know your salt based system is working)?



Thanks

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: [303-236-2769](tel:303-236-2769)

## Update from Salt Lake City

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



**Howett, Daniel H. <howettdh@ornl.gov>**

11/13/  
13

to Kevin, me, robj, revans, David, jmccord, daniel.wang

Good Afternoon All,

Jim and I left the courthouse this morning after having our last visit to check on the widget's performance.

There was very light calcium buildup on the heating elements. The two new ones which were installed during our last visit showed very little buildup. What calcium was on the elements was very fragile and almost totally fell off as we were withdrawing the elements for examination.

There was minor buildup of calcium flakes in the bottom of the tank from where they fell off the heating elements.

Overall, I would say that the Fluid Dynamics' device is a viable option for controlling calcium buildup in water systems. It did not create "perfectly clean" elements as was originally hinted at by the vendor, but the calcification issue at the courthouse was substantially helped by the device. Data taken at the site shows a definite step change when the device was installed, indicating that it was the cause of the change.

Site operations personnel will continue watching the totally system's performance and let me know of any long-term issues that arise.

I will get cranking on assembling the report and issuing for review.

Please feel free to call with any questions.

Sincerely,

Dan

**Dan Howett, PE, CEM**

R&D Staff

Energy & Transportation Science Division

Oak Ridge National Laboratory

Cell: (b) (6)

Ph: (865) 576-2172

Fx: (865) 574-3851

E-Mail: [HowettDH@ORNL.gov](mailto:HowettDH@ORNL.gov)

## Re: Plans for the August 20 visit to the Moss Building

Inbox x

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x



**Rob James III <[robj@fdnasp.com](mailto:robj@fdnasp.com)>**

8/13/  
13

to Daniel, me, David, Daniel, Randy, Rick, Kevin

Thanks

Rob James III

CVO/Principal

Fluid Dynamics

239-707-5274

On Aug 13, 2013, at 10:39 AM, Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)> wrote:

Let's plan on meeting at 9:15 at the south entrance to the courthouse. The plumber is scheduled to arrive at 9:30 so the timing should be just right. I will let Routy and Rodney to have the electric water heater drained so we can take the elements out soon after 9:30. We will not start draining the natural gas water heater until we see the elements. As Dan stated, the elements will lead us to the determination of whether we remove the devices or not.

I'm looking forward to the big reveal next week!

Daniel

---

***For all Frank Moss Courthouse building issues, please call (801) 524-5716***

***Daniel A Wang, Property Manager***

***US General Services Administration***

***Frank E Moss Courthouse***

***Salt Lake City, UT***

***Office: 801-524-3382***

***VOIP: 303-236-1272***

***Cell: (b) (6)***

On Tue, Aug 13, 2013 at 7:45 AM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:  
Thanks Dan-

As an addition to Dan's agenda for Tuesday, likely in a couple of weeks we will schedule what is called a Final Data Analysis presentation. This is where Dan will present the data/observations via webex and we will have a discussion about those findings in preparation for the report writing. Both the GSA Field Office and FD will be invited to that webex.

Thanks...and good luck next week.

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: [303-236-2769](tel:303-236-2769)

On Tue, Aug 13, 2013 at 6:10 AM, David Hollingbery <[davidh@fdnasp.com](mailto:davidh@fdnasp.com)> wrote:  
Thanks Dan, very interesting.

Regards

David Hollingbery

CTO/Principal

**Fluid Dynamics NA, LLC**

4900 Airport Parkway #1005

Addison, Texas 75001-1005

[\(855\) 228 8766](tel:8552288766) toll free

[\(847\) 334 4869](tel:8473344869) direct

[\(214\) 614 8300](tel:2146148300) fax

web: <http://www.fluidynamicsna.com>

<image001.gif>

<image002.jpg>

**From:** Howett, Daniel H. [mailto:[howettdh@ornl.gov](mailto:howettdh@ornl.gov)]

**Sent:** Tuesday, August 13, 2013 5:37 AM

**To:** Daniel Wang; Randy Evans

**Cc:** David Holingbery; Rob James; Rick Meyers; Kevin Powell; Michael Lowell

**Subject:** Plans for the August 20 visit to the Moss Building

Good Afternoon All,

To use a baseball analogy, the Seventh Inning Stretch is over and it's time to get back on the field and finish this game for the home team.

Next Tuesday, August 20th, is our final visit to SLC. Here is a plan as to how I see the day playing out...

1. The team (Daniel, Randy, Me, Routy, Rodney, and JCI) gather at Moss Courthouse. The electric tank is de-energized and drained. **Daniel, can you please establish a time for us all to gather on Tuesday morning?**
2. The heating elements are removed for inspection. Based on findings, one of two courses will take place...
  - 3a. If the elements show no sign of calcium buildup, two elements are given to me for documentation. I'll document in the tank internally with a borescope. The remaining four elements are put back in the tank along with two new ones. The tank continues to operate in its new condition.
  - 3b. If the elements show a degree of calcium buildup, two elements are given to me for documentation and further evaluation. I'll document the tank internally with a borescope. Depending upon the condition of the other four elements, they are either put back in the tank, or discarded and replaced with new elements. GSA management makes a decision as to whether they want the water treatment devices to remain in place or be replaced with spool pieces.
4. JCI will download the last data sets from the instruments and then remove the instruments from site.

From that point forward, I will start writing the report and going through the review process with GSA.

Here is a summary of data points that I have so far. When I get the complete data files next Tuesday I'll forward them to all parties for their review.

1. The baseline data period began on April 3, 2013. The tank was operating with no NCWT installed, and instrumentation tracking the heating element amps, water supply flow, and water recirc flow. Attached is a chart (Chart, 4-15 - 4-21.jpg) showing a typical Monday–Sunday week from this period.
2. I spoke with Rocky Mountain utilities and they indicated that the weekday current drops are consistent with voltage drops that their grid experiences during these periods. This is not an issue with the heating elements.

3. The NCWT widget was installed on June 11, 2013. No other parameters were changed on the system. Attached is a chart (Chart, 6-17 - 6-23.jpg) from a week shortly after the widget was installed.

4. On June 29, 2013, Daniel sent out the attached e-mail indicating that the DHW system temperature was "slowly creeping up" to 150 degrees from its normal 120 degrees. Routy adjusted the thermostats down so that water is again be supplied around 120 degrees. Daniel sent me a trend of water inlet and outlet temperatures since March 2013. There's still a lot for me to cipher in the data, but there definitely was a trend upwards in the temperature after installation of the widget.

5. An attached graph (Chart, 7-22 – 7-28.jpg) shows a typical week in late July after the thermostat was adjusted down.

Tuesday has potential to be a full and interesting day. I'm looking forward to gathering all the information and chewing through it for useful results.

Please feel free to use <reply to all> as we prepare for Tuesday.

Batter Up!

Dan

**Dan Howett, PE**

R&D Staff

Energy & Transportation Science Division

Oak Ridge National Laboratory

Cell: (b) (6)

Ph: [\(865\) 576-2172](tel:8655762172)

Fx: [\(865\) 574-3851](tel:8655743851)

E-Mail: [HowettDH@ORNL.gov](mailto:HowettDH@ORNL.gov)



**Re: Fluid Dynamics' involvement in this test**

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x

**Michael Lowell - 8P2 <mike.lowell@gsa.gov>**

1/7/  
13

to Kevin, Daniel, Daniel

Kevin-

Here is Rob's input/response.

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: 303-236-2769

On Fri, Jan 4, 2013 at 6:36 AM, Rob James III <[robj@fdnasp.com](mailto:robj@fdnasp.com)> wrote:  
Dan,

Thanks for your thoughts and I agree with the status we are in. Although the factory and the contractor both agree that something else like a sticking thermostat or something that is causing the elements to over heat is most likely the cause of the failure and not scale build up. One question I have ask but not received and answer for is the use points of the hot water in the building. I want to do a usage calculation to make sure I have sized the unit properly. Normally down sizing by one size is standard for us as we did, but some times the piping is so over sized that a much smaller unit is required based on flow. I was surprised that no one had contacted the manufacture in the past since this issue has been going on since the installation of the unit. I have talked to Daniel's contractor and

to his knowledge this is not happening to any other water heater in the area. I am working to talk to someone at the manufacturer myself to help in getting to the bottom of this. Our manufacturer will be glad to discuss this when the time arrives they have been involved from my side. I feel confident in your unbiased efforts that you are pursuing. I can promise you that from our side we will do anything we can to assist in the team efforts.

Thanks again

Rob

Rob James III  
CVO  
Fluid Dynamics NA  
P.O. Box 1005  
Addison, Texas 75001-1005  
239-707-5274 direct  
855-228-8766 fax  
skype: scalebusters  
[robj@fdnasp.com](mailto:robj@fdnasp.com)  
[www.fluidynamicsna.com](http://www.fluidynamicsna.com)

Print this message only if it is necessary. Nature will thank you!

On Jan 3, 2013, at 4:48 PM, Howett, Daniel H. wrote:

Hello Rob,

I don't think it is any secret that to date, the tests in Salt Lake City have not reflected favorably on the Fluid Dynamics device. We are still digging hard to make sure that no questions are left unanswered, and I want to request the assistance of you and the manufacturer in this process.

If there are any questions that your team would like explored, please let me know as they come up.

If there are samples that you would like for your own evaluation, or data sets/reports that you would like to review, please let me know. If the manufacturer would like me to participate in phone conferences to explain our test procedures, I'd be happy to do so. I'm sure we can figure out agreeable times between the UK and US.

I consider Fluid Dynamics to be a full partner in this evaluation process, and I value highly your input as the experts on your equipment. The more input we have into this process, the more valuable the results will be to the GSA.

Our biggest failure as a research team will be to get to the end of this test and one of us go, "If we had only..."

It will be doubly frustrating if the vendor brings up an issue at that point and says, "If we had only done it <another way>, the device would have worked perfectly." I'm asking you now to help us give the device every opportunity to succeed. That way, at the end of the test, we will have either...

A) learned the parameters that must be met in order for the device to succeed in treating hard water. Or...

B) determined that the device doesn't work, and GSA can move forward looking for other water treatment technologies.

I have appreciated your active input to date on this project, and look forward to your participation and input throughout its course. Please feel free to write or call at any time with thoughts or ideas.

Sincerely,  
Dan

Dan Howett, PE, CEM  
R&D Staff  
Energy & Transportation Science Division  
Oak Ridge National Laboratory  
Cell: (b) (6)  
Ph: (865) 576-2172  
Fx: (865) 574-3851  
E-Mail: [HowettDH@ORNL.gov](mailto:HowettDH@ORNL.gov)

## Re: Fluid Dynamics' involvement in this test

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x

**Michael Lowell - 8P2 <mike.lowell@gsa.gov>**

1/3/  
13

to Daniel, Daniel, Kevin

Daniel-

Thanks for the update. I just talked to Daniel H. and agree with his approach that we want to do whatever we can do to set this up so the technology has the best chance for success (and so we can establish the parameters necessary for success...if possible).

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: 303-236-2769

On Thu, Jan 3, 2013 at 3:14 PM, Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)> wrote:  
Mike,

Our mechanics test water hardness on a regular basis in the building. He told me that he has seen the water hardness decrease a little. With that said, the calcium plating on the elements that we saw after the device was installed was much worse than prior to

the installation. The elements actually burst apart because they had dried out from the calcite. That had never happened prior to the device installation.

We just replaced all six elements using elements similar to the original elements. We are carefully watching them to see how they fare.

Thanks,

Daniel

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***Daniel A Wang***

***Property Manager***

***US General Services Administration***

***Salt Lake City, UT***

***Office: 801-524-5260***

***VOIP: 303-236-1272***

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On Thu, Jan 3, 2013 at 3:01 PM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:  
Dan 1 and 2:

How is it failing? Are we seeing no change in the water hardness...and hence the continued calcite plating on the heating elements?

Thanks

Michael Lowell, PE, LEED AP

Program Expert

Office of the Chief Greening Officer

Green Proving Ground Program

US General Services Administration

Phone: [303-236-2769](tel:303-236-2769)

## Re: Non-chemical Water Treatment: Phase 1 completed

GPG Program Management/GPG FY 12/Non-chemical H2O/FOIA 2 x

Michael Lowell - 8P2 <mike.lowell@gsa.gov>

11/16/  
12

to Daniel, Daniel, Rob, erika.larsen, Kevin, Julia, John

Great! Thanks

Michael Lowell

Sent from my iPhone

On Nov 15, 2012, at 4:20 PM, "Howett, Daniel H." <[howettdh@ornl.gov](mailto:howettdh@ornl.gov)> wrote:

Hello Mike,

To add to Daniel's comments, I'll definitely put this day in the "success" column. The hiccup was a complete non-issue. We adapted and overcame with minimal effort and the project is going forward well.

The entire GSA and building staff has been aggressively cooperative in every way, which has made this project go very smoothly.

We completed documented the "before" conditions of the water heating system. Suffice to say this is a very challenging site with an enormous water hardness issue. If the technology can succeed here, I will be comfortable recommending it for widespread use in the federal building fleet.

The vendor and I are meeting this evening to go over the hundreds of photographs from today and the project's next steps. He has been engaged since Day 1 to ensure a thorough and fair test for his product.

Please feel free to call if you have any questions. I'll keep you posted as the project goes forward.

Dan

**Dan Howett, PE, CEM**

R&D Staff

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**From:** Daniel Wang - 8PSMPU [mailto:[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)]

**Sent:** Thursday, November 15, 2012 5:35 PM

**To:** Michael Lowell - 8P2

**Cc:** Howett, Daniel H.; Rob James III

**Subject:** Non-chemical Water Treatment: Phase 1 completed

Mike,

The first phase of the project has been completed. Our contractor installed the unit on the electric water heater and the natural gas water heater. The morning had a few hiccups, but overall everything went well and we had the hot water to the building only off from 11:30 until 1:30. I'm not sure whether the building tenants even noticed! It was great to meet Dan and Rob face-to-face and to work with them throughout the morning. We have made tentative arrangements to have them return on February 12 to check the elements on the electric water heater and see if there is any calcite build-up. We will also install the cooling tower unit and the make-up water unit at that time.



Thanks!

Daniel

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***Daniel A Wang***

***Property Manager***

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On Thu, Nov 15, 2012 at 7:51 AM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:

Thanks!

Michael Lowell, PE, LEED AP

Program Expert

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On Wed, Nov 14, 2012 at 4:58 PM, Daniel Wang - 8PSMPU <[daniel.wang@gsa.gov](mailto:daniel.wang@gsa.gov)> wrote:

Mike,

It was originally slated to be done in the Hansen Building, but it was determined during a site visit that the building was not suited for the installation of the technology. At some other point, the manufacturer, GSA and the National Labs decided that we would do this at the Frank E Moss Courthouse in Salt Lake City. We are installing the technology tomorrow morning on the domestic hot water system and will take some pictures of the cooling tower fill, then return in the spring to do the cooling tower.

Thanks,

Daniel

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***Daniel A Wang***

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On Wed, Nov 14, 2012 at 3:02 PM, Michael Lowell - 8P2 <[mike.lowell@gsa.gov](mailto:mike.lowell@gsa.gov)> wrote:

Daniel-

This GPG project is in the Hanson Bldg. in Ogden, correct? I have a document saying the Moss FCH in SLC.

Thanks

Michael Lowell, PE, LEED AP

Program Expert

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